REMARKS

Prior to this amendment, claims 1-3, 6, 7, 10-15, 18 and 20-22 were pending. In this paper, claims 3, 6, 10, 12, 13, 15 and 18 have been cancelled. Claims 1 and 11 have been amended. In light of the forgoing, claims 1, 2, 7, 11, 14, 20-22 and 24 remain pending, entry of the amendments and consideration of these claims in light of the following is hereby requested.

No new matter has been added via these amendments to the claim set. Applicants reserve their right to pursue subject matter cancelled from the claims, or otherwise described in the specification but not currently claimed in the future.

Applicants respond to each of the objections or rejection raised in the order in which they were presented in the Office Action.

I. Specification

Claims 3, 12 and 15 have been objected to as failing to provide antecedent basis for the claimed subject matter. Claims 3,12 and 15 have been cancelled.

II. The Claimed subject Matter is not Anticipated by Parce (US 6,046,056)

Pending Claims 1-3, 6-7, 11-15, 18, 20, and 21 stand rejected under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Patent No. 6,046,056 (Parce *et al.*). Applicants respectfully traverse this rejection.

Claim 1 concerns a system having a microfluidic channel structure in which fluids are able to interact to produce at least one product. The system has an automated closed-loop control mechanism to autonomously control a condition in the channel structure. The automated closed-loop control mechanism has:

- a sensor adapted to produce a sensor signal representative of a predetermined property of the at least one product which is dependent on the condition in the channel structure;
- a transfer mechanism to transfer reagents from an array of reagents to the channel structure; and
- a computer adapted to receive the sensor signal and adapted to cause the transfer mechanism to change the reagent combination in the channel structure in dependence of the sensor signal.

All other claims include these features by dependency.

An important point is that the transfer mechanism is part of the automated closed-loop control mechanism and is caused to change the reagent combination in the channel structure by the computer in dependence of the sensor signal received thereby. In other words, the computer determines which new reagent combination to interact in the channel structure depending on the sensor signal for a preceding fluid product and then causes the transfer mechanism to introduce the new reagent combination.

Parce discloses a system in which test compounds are run through a channel structure and "[a]n effect of the test compound….is then detected" (col. 2, lines 60-61 and similar passages at col. 3, lines 12-13, 29-31 and 59-61; col. 7, lines 17-22; col. 8, lines 26-29; etc). Parce is silent on the basis on which the test compounds are introduced into the channel structure of its system. For instance, in Parce at col. 9, lines 59-62, it is stated that the test compounds are individually introduced into the sample channel 112, but there is no remark about on what basis. This is the same in all other similar passage in Parce. Moreover, Parce does not disclose what further use is made of the data acquired by the detection, except matching the data to the test compounds (e.g. col. 8, lines 44-45; col. 12, lines 13-15).

In view of these omissions in Parce, it naturally follows that there is no disclosure of using the data to determine what test compound should follow in

the system. Thus, Parce does not disclose or suggest a system with an automated closed-loop control mechanism of the type required by the claims. Rather, it must be concluded that in Parce the introduction of the test compounds is preset before a system run, not determined during a system run as with the system of the claims.

Even in the context of the microlaboratory system described at col. 21, line 37 et seq. with reference to Figure 7, which appears to be referred to in point 11, there is no disclosure of a computer using a sensor signal to intelligently change the test compounds using a transfer mechanism.

Applciants assert that the requirements for the automated closed-loop control mechanism in the claims cannot be ignored. The computer of the claims is adapted to cause the transfer mechanism to change the reagent combination in dependence of the sensor signal from the sensor. Just because Parce discloses a computer, this does not anticipate this requirement of the claims. Capability is not enough (Office Action, point 10, last sentence). Parce has to disclose the claimed inter-relationship between the sensor, transfer mechanism and computer in the context of an automated closed-loop control mechanism. **It does not.**

It is also evident that in the novelty objection set forth in points 10 and 11, the Office relies on a patchwork of disclosures from different parts of the specification; e.g. Fig 6c; column 8; column 22 and Figure 7. The Office does not, and cannot, point to any individualised disclosure which meets all of the limitations of claim 1. In any event, this patchwork still does not amount to claim 1 given the complete absence in Parce of a disclosure of changing the test compound in dependence of the data acquired from a prior test compound.

Parce discloses passing a large number of test compounds through its system to detect results of interest and correlating that detection back to the respective test compound. There is no closed-loop control of introduction of the test compounds. All Parce is concerned with is producing data which can

be used at some future point, e.g. for further investigation of the test compounds of interest. Thus, a large number of compounds are screened blind to find useful leads. However, the system of the claims differs in that it is able to streamline the process by using closed-loop control to find a product of interest because it decides which reagents to use based on the result of a previous reagent combination. As such a system is not disclosed or suggested by Parce, the claims are novel and non-obvious, even when accounting for the other cited references because they do not make up the deficiency in the disclosure in Parce.

All rights to argue for the independent patentability of the dependent claims are to be reserved.

III. Section 103(a) Rejection Overcome

Pending Claim 22 stands rejected under 35 U.S.C. §103(a) as being allegedly obvious by U.S. Patent No. 6,046,056 (Parce *et al.*). Applicants respectfully traverse this rejection.

Per the discussion in section II, there is nothing in Parce that would render claim 22 obvious. Thus, Applicant respectfully requests a withdrawal of this rejection.

Pending Claim 24 stands rejected under 35 U.S.C. §103(a) as being allegedly obvious by U.S. Patent No. 6,046,056 (Parce *et al.*) in view of U.S. Application No. US 2002/0009392 A1 (Wolk *et al.*). Applicants respectfully traverse this rejection.

As discussed in section II, there is nothing in Wolk in any combination with Parse would render Applicants claim obvious. Thus, Applicant respectfully requests a withdrawal of this rejection.

CONCLUSION

All claim rejections being addressed in full, Applicants respectfully requests the withdrawal of the outstanding objections and rejections and the issuance of a Notice of Allowance.

Should the Examiner have any questions regarding the foregoing, Applicant respectfully requests that the Examiner contact the undersigned, who can be reached at (919) 483-9995

Respectfully submitted,

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/Dwight S. Walker/
Dwight S. Walker
Agent of Record
Reg. No. 63,170

Customer No. 23347
GlaxoSmithKline
Corporate Intellectual Property
Five Moore Drive, P.O. Box 13398
Research Triangle Park, NC 27709-3398
Tel: (919) 483-9995
Fax: (919) 315-4032